

## **Small hydropower schemes in Southern Ethiopia - Knowledge and technology transfer based on South-South-Cooperation supported by the Global Energising Development Partnership**

The GIZ Energy Coordination Office (GIZ ECO, formerly GTZ), working in the framework of the global Energising Development (EnDev) Partnership<sup>i</sup>, has established four Micro Hydro Power plants in Sidama zone in Southern Ethiopia. The plants are providing electricity to 3 rural communities since 2012. Through those schemes over 30 social institutions, more than 300 households and around 100 small and medium enterprises in off-grid areas got access to reliable and renewable electricity.

GTZ/GIZ ECO has focused on strengthening local capacities to construct small hydropower schemes with local materials and expertise in order to reduce cost and make the technology a viable and self-sustaining solution for off-grid areas.

Part of that support has been a training for turbine manufacturing in Bandung City, Indonesia, in 2008. For one month technicians from Ethiopia received training on manufacturing of cross-flow turbines. Amongst them were participants from the private sector (Selam Awassa PLC, Tsega Turbine), as well as from Arba Minch and Jimma University, from the government sector, non-governmental organisations (Mekane Yesus) and the GTZ. The costs for the training have been fully financed by the Energising Development Partnership.

Through the vast experience of Indonesian companies, who have been involved in turbine manufacturing intensively, Ethiopian companies and stakeholders of the hydropower sector gained knowledge not only about manufacturing turbines, but also about small hydropower schemes in general, starting from conducting feasibility studies as well as about the service and maintenance of all components.

Selam Awassa PLC and Tsega Turbine are now active in the MHP market. Tsega Turbine (Tsega Mekonnen General metals and machining work) sees MHP construction as their core business. In 2014 they had a contract with private developers (for Bale Mountain Lodge) to construct MHP with 20 KW generation capacity. The turbine and all the metal parts are manufactured by Tsega Turbines themselves. They also manufactured turbines for the Ethiopian hydro power society, turbine and penstock for an Italian NGO, and executed mill upgrading works in various regions of Ethiopia. With the ongoing reform process of the Ethiopian energy sector in 2014, this know-how should enable these companies to tap into this emerging market in the coming years.

Last but not least, two *centres of excellence* have been established in Arba Minch and Jimma University contributing to knowledge transfer and technology development on academic level.

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<sup>i</sup> The EnDev Partnership is a global multi-donor working in 24 countries, financed by Australia, Germany, the Netherlands, Norway, Switzerland, and the United Kingdom.